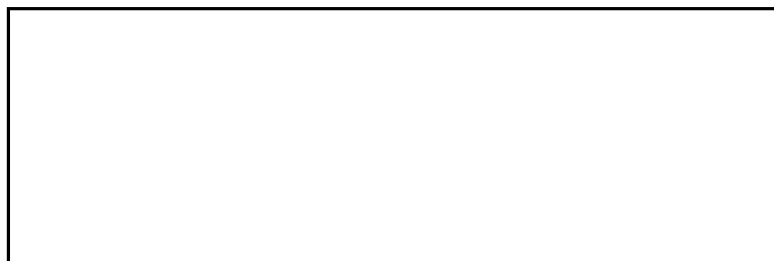


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3 September 1965

Declass Review by NGA

U. S. Government
Washington, D. C.

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Subject: Contract [redacted]
Task Order No. 02 (100,011) 65-R

Enclosure: a) Prototype Modulated-Light Film Viewing Tables
Monthly Narrative Report - August 1965, Two (2) copies

Gentlemen:

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[redacted] forwards herewith Enclosure a) in accordance with the reporting requirements under Item 4 of subject contract task order.

By copy of this letter we are forwarding three (3) additional copies of the report to the Technical Representative.

Should you have any questions or desire further information in this matter, please feel free to contact the undersigned.

Very truly yours,

ORIGINAL SIGNED BY

[redacted]

Contract Representative

STAT

DTC/rs

cc: Technical Officer, Three (3) copies

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PROTOTYPE MODULATED-LIGHT FILM VIEWING TABLES
CONTRACT [REDACTED] TASK ORDER NO. 02(100,677)65-R

Monthly Narrative Report - August 1965

This is the second of a series of monthly narrative reports on the development of two prototype modulated-light film viewing tables. With these tables, photographic negatives or transparencies will be illuminated by a fast-moving spot of light whose intensity will be automatically varied to effect large-area contrast compression. This report covers the work performed by the Astro-

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[REDACTED] during the period from 22 July to 22 August 1965. (Project personnel participated in a two-week Division shutdown for vacation ending 1 August 1965.)

A. Current Status of Work

The mechanical design of the prototype tables is proceeding satisfactorily. Completion of this task was originally scheduled for the end of this monthly period; however, new considerations relating to the kinescope facing material, microscope transport system, etc., have necessitated a delay of several weeks. The entire prototype delivery schedule is now being reviewed.

The problem of finding a suitable kinescope facing material has been receiving considerable attention. The facing material, which will provide a truly flat surface for film illumination and viewing, must have optical and thermal properties which are compatible with the kinescope faceplate characteristics. Several materials (such as acrylic and water-white epoxies) and application techniques (like casting and forming) have been investigated. A satisfactory solution to this problem is still being sought.

The preliminary investigation of several microscope transport techniques indicated that the pivot pantograph system was most promising in terms of ease of movement and construction. A series of stress and deflection calculations were begun to determine the size of such a system and the associated (vertical) displacements of the microscope within the pantograph system. This study is continuing.

The design of the film transport system was modified to permit a minimum film speed of 1/4 inch per second. The maximum speed will be 50 inches per second. Other mechanical design efforts during the monthly period were concerned with the general layout and table console design.

The electrical design was completed and assembly of the prototype circuit boards was proceeding ahead of schedule. Preliminary checkout of the electronics revealed several problems which necessitated some minor system modifications. These have been made as required, and the electronic checkout is continuing ahead of schedule.

B. Problem Areas Encountered

1. The problem of finding a suitable kinescope facing material, i.e., one with compatible optical and thermal properties, has proven to be quite difficult. This investigation has been given a very high priority.

2. Completion of a rough (wood) model of the table console illustrated a problem with the viewing surface height. The mutually-suggested dimension of 34 inches is too high for comfortable viewing in the flat position. Methods for lowering this surface by two or more inches are now being studied.

3. With respect to the electronic circuitry, the video shielding was found to be inadequate. Special mounting and other isolation techniques are now being investigated for inclusion in the electrical design.

4. The kinescope beam deflection system employs two phase-locked loops whose feedback error signals are of differing magnitudes. The resulting beam motion is undesirable because it produces annoying effects on the kinescope raster. This problem is now receiving considerable attention.

5. There is a distinct possibility that the high electrical potentials associated with the kinescope operation will create static charge effects which will result in film transport (movement and surface-scratching) problems. Electrical discharging techniques are now being reviewed.

C. Projected Work for Next Monthly Period

1. Complete design of film transport system.
2. Complete study and preliminary design of microscope transport (pivot pantograph) system.
3. Complete investigations of kinescope face-flattening, light diffusing, and cover glass materials and techniques.
4. Continue mechanical design and assembly.
5. Complete electrical circuit assembly and checkout.
6. Continue electrical and mechanical system integration efforts.
7. Evaluate alternate light pickup and feedback scheme proposed to the Technical Representative and, if feasible, incorporate it into present design.

D. Status of Fund Expenditures to End of Monthly Period
Funds expended at break-even level to 29 August 1965:



E. Documentation of Verbal Commitments and/or Agreements During the Period

1. Each table will be designed for a right-handed operator; however, it will be possible to secure the control box (which must be easily accessible to the operator) at several positions on either side of the table top.

2. A so-called convenience (ac power) outlet and, if possible, a front drawer will be provided with the table.

3. A reading light will be incorporated in the design of the table.

4. The microscope transport study will concentrate on the pivot pantograph system, which shall have provision for locking the microscope in any position.

5. The necessity for a "catch basket" to protect the kinescope from accidental drops of the film reels (during reel changing), this in addition to the molded fiberglass shield, will be determined.

6. An estimate of the heat output of the table equipment will be made.

7. Complete table movement will be facilitated by the inclusion of furniture rollers which shall be lockable in place.

8. A request that film loading be performed from the front of the table, if at all possible, will be considered in a general review of the mechanical design.